

What is claimed:

1 1. In an electronic circuit component positionable upon a
2 substrate and electronically connectable thereto, an improvement
3 of a connector for facilitating connection of the electrical
4 circuit component to the substrate, said connector comprising:

5 at least a first pin member affixed to the electrical
6 circuit component to form a portion thereof, said first pin
7 member affixed to extend downwardly beneath a bottom surface of
8 the electronic circuit component, thereby to engage with the
9 substrate when the electronic circuit component is seated upon
10 the substrate, said first pin member of a first configuration
11 when at a first temperature and of a second configuration when
12 heated to at least a second temperature, said first pin member
13 remaining in the second configuration subsequent to heating
14 thereof to at least the second temperature, the second
15 configuration into which said first pin member is configurable
16 facilitating maintenance of connection of the electronic circuit
17 component upon the substrate.

1 2. The connector of claim 1 wherein the substrate defines
2 a seating surface for seating of the electronic circuit component
3 thereon, the seating surface having at least a first indent
4 formed therein and extending beneath the seating surface, and
5 wherein said first pin member extends into the first indent when
6 the electronic circuit component is seated at the seating
7 surface.

1 3. The connector of claim 2 wherein the at least the first
2 indent comprises the first indent and at least a second indent
3 and wherein said at least the first pin member comprises said
4 first pin member and at least a second pin member, said first pin
5 member extending into the first indent and said second pin member
6 extending into the second indent when the electronic circuit
7 component is sealed at the seating surface.

1 4. The connector of claim 2 wherein, when the electronic
2 circuit component is seated upon the seating surface, said first
3 pin member exerts a first clutching force at the first indent and
4 said second pin member exerts a second clutching force at the
5 second indent subsequent to heating to the at least the second
6 temperature.

1 5. The connector of claim 4 wherein said first pin member
2 is affixed to extend beneath a first side edge of the electronic
3 circuit component, wherein said second pin member is affixed to
4 extend beneath a second said edge of the electronic circuit
5 component, and wherein the first clutching force and the second
6 clutching force are exerted in opposing directions.

1 6. The connector of claim 1 wherein said at least the
2 first pin member exhibits physical-memory characteristics, said
3 first pin member shaped into the second configuration such that
4 the second configuration defines a physical-memory configuration
5 of said first pin member, said first pin member thereafter
6 reshaped into the first configuration.

1 7. The connector of claim 1 wherein said pin member
2 comprises an elongated camber-leg which exhibits a cambered-
3 configuration when configured in the second configuration.

1 8. The connector of claim 7 wherein the elongated camber-
2 leg forming said pin member exhibits an amount of camber when
3 configured in the second configuration greater than the elongated
4 camber-leg is configured in the first configuration.

1 9. The connector of claim 1 wherein the substrate defines
2 a seating surface for seating of the electronic circuit component
3 thereon, the substrate having at least a first through hole
4 formed to extend therethrough and wherein said first pin member
5 extends through the first through hole when the electronic
6 circuit component is seated at the seating surface.

1 10. The connector of claim 9 wherein said first pin member
2 defines a proximal side portion affixed to the electronic circuit
3 component and a distal side portion extending beyond the
4 substrate when the electronic circuit component is seated upon
5 the substrate.

1 11. The connector of claim 10 wherein said pin member
2 further comprises a foot piece positionable to abut against a
3 bottom face surface of the substrate when said first pin member
4 is configured in the second configuration and the electronic
5 circuit component is seated upon the seating surface, thereby to
6 prevent removal of the electronic circuit component out of the
7 seating surface.

12. The connector of claim 11 wherein the first through hole is of diametrical dimensions permitting translation therethrough of said first pin member, and the foot-piece formed at the distal side portion thereof, when said pin member is configured in the first configuration and is of diametrical dimensions preventing translation of said first pin member out of the first through hole subsequent to positioning of the electronic circuit component upon the seating surface and configuring said first pin member into the second configuration.

13. The connector of claim 1 wherein the substrate includes an electrically-conductive circuit path, and wherein said first pin member is formed of an electrically-conductive material, said first pin member electrically connecting the electrically-conductive circuit path and electrical circuit component when the electrical circuit component is seated upon the substrate and said first pin member is configured in the second configuration.

1 14. The connector of claim 13 wherein said first pin member
2 both physically connects the electrical circuit component in an
3 affixed position and electrically connects the electrical circuit
4 component to the substrate when the electrical circuit component
5 is seated upon the substrate and said first pin member is
6 configured in the second configuration.

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1 15. A method for connecting an electrical circuit component
2 to a substrate, said method comprising:

3 affixing at least a first pin member to the electrical
4 circuit component to extend downwardly beneath a bottom surface
5 of the electrical circuit component, the at least the first pin
6 member of a first configuration when at a first temperature and
7 of a second configuration when heated to at least a second
8 temperature;

9 seating the electrical circuit component upon the
10 substrate when the at least the first pin member affixed during
11 said operation of affixing is configured in the first
12 configuration;

13 heating the at least the first pin member to elevate
14 the temperature to at least the second temperature, thereby to
15 reconfigure the at least the first pin member into the second
16 configuration, such that, once configured into the second
17 configuration, the electrical circuit component becomes affixed
18 to the substrate.

1 16. The method of claim'15 wherein the at least the first
2 pin member exhibits physical-memory characteristics, said method
3 further comprising the preliminary operations of:

4 comprising the at least the first pin member into the
5 second configuration; and, thereafter

6 reshaping the at least the first pin member back into
7 the first configuration.

1 17. The method of claim 15 wherein the substrate defines a
2 seating surface having at least a first indent formed therein and
3 extending beneath the seating surface, and wherein said operation
4 of seating comprises seating the electrical circuit component
5 upon the seating surface such that the at least one pin member
6 extends into the at least one indent.

1 18. The method of claim 17 wherein the at least first
2 indent forms a through hole extending through the substrate and
3 wherein, when the electrical circuit component is seated at the
4 seating surface during said operation of seating, the at least
5 the first pin member extends through the at least one through
6 hole.

1 19. The method of claim 17 wherein the at least the first
2 indent comprises the first indent and at least a second indent,
3 wherein the at least the first pin member affixed during said
4 operation of affixing comprises the first pin member and at least
5 a second pin member and wherein said method further comprises the
6 operation, subsequent to said operation of heating, of generating
7 clutching forces by all of the first and at least second pin
8 members to affix the electrical circuit component in position at
9 the substrate.

1 20. The method of claim 15 wherein said operation of
2 affixing further comprises electrically connecting the electrical
3 circuit component to the substrate.